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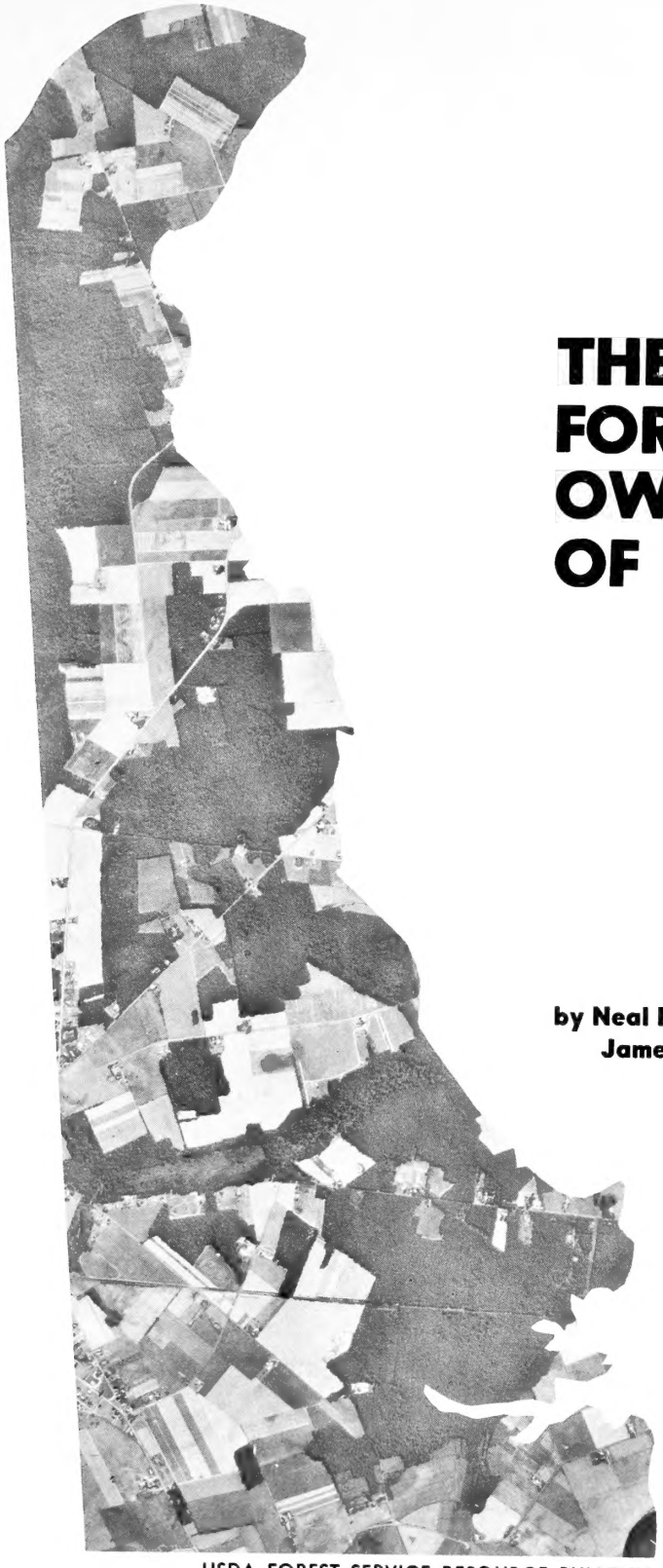

THE FOREST-LAND OWNERS OF DELAWARE

by Neal P. Kingsley and
James C. Finley

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THE FOREST-LAND OWNERS OF DELAWARE

ABSTRACT

A statistical-analytical report on a mail canvass of the owners of privately owned forest land in Delaware, based on a study made in conjunction with the second forest survey of Delaware by the USDA Forest Service. Statistical findings are based on responses supplied by owners to a questionnaire. Trends in forest-land ownership and the attitudes and intentions of owners regarding reasons for owning forest land, timber management, timber harvesting, and recreational use are discussed.

BACKGROUND

THE RECENTLY COMPLETED forest survey of Delaware provided estimates of forest area and timber volume by broad owner categories (*Ferguson and Mayer 1972*). But it did not provide estimates of the volume or acreage of timber that might be available for harvesting. Nor did it describe the attitudes of typical forest landowners, their reasons for owning forest land, or their views toward timber harvesting, forest management, and recreational use of their land by the public. The purpose of our study is to provide this information in a form that will be useful when used in conjunction with the forest-resource report for the state.

The rural landscape of Delaware, like that of many other states, has been undergoing dynamic changes for a number of years. Rural-to-urban migration, mechanization of agriculture, greater agricultural productivity, and greater affluence and mobility of the population have brought about many important changes.

The number of farms in Delaware declined during the last decade. Yet the average size of farms increased (*U.S. Census Bureau 1969*). The latest forest survey showed that farmers, both individuals and corporations engaged in farming, owned 46 percent of the commercial forest land in the state.

The forests of Delaware are under increasing pressure to supply not only timber but also recreational experiences and suburban homesites for an increasing population. A strong demand for softwood timber is rapidly changing many forest stands from softwood to hardwood or from mixed softwood-hardwood to pure hardwood. During the period

1957 to 1971, softwood growing stock decreased 20 percent while hardwood volume increased 48 percent.

RESULTS

11,400 Owners

There are approximately 11,400 owners of the 370,000 acres of privately owned commercial forest land in Delaware. The average size of forest ownerships is 32 acres. The ownerships range from less than 2 acres to more than 11,000 acres. There are more ownerships in the 20- to 49- acre class than in any other size class (fig. 1).

Individuals Hold Three-Fourths

Individuals — as opposed to corporations, partnerships, and other groups — own 73 percent of the private forest land in Delaware. Although corporations account for only 3 percent of the owners, they hold 19 percent of the land. Individual owners are mainly farmers. They own 43 percent of all the forest land in Delaware. Retired persons account for 21 percent of the acreage held by individuals. Frequently, when farmers retire, they sell or lease some of their farm acreage but retain a part to live on. Other occupation groups account for the remaining 22 percent of the acreage owned by individuals.

Consistent with the high proportion of retired owners is the fact that most owners are more than 50 years old. Thirty percent of the individual owners have cash incomes of less than $3,000 per year, and 81 percent have incomes of $10,000 per year or less. These people own 69 percent of the acreage owned by individuals. Also, 92 percent of the individual owners have 12 years of formal education or less and 49 percent have 8 years or less.

In a state with a relatively high per-capita income, the low income of forest owners is

Figure 1.—Estimated number of forest-land owners and total acreage owned, by size class, in Delaware, 1972.

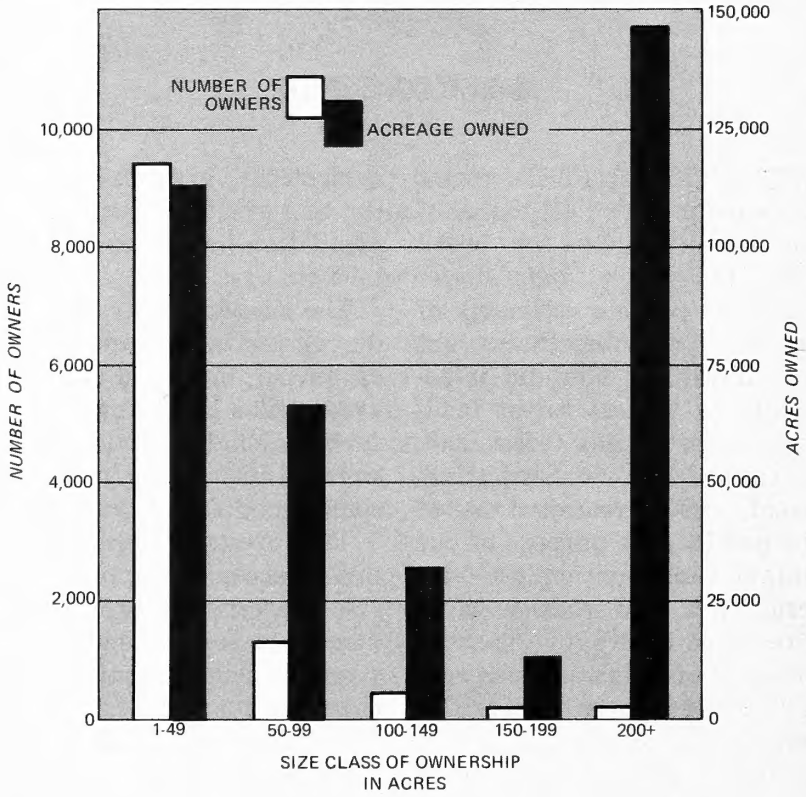
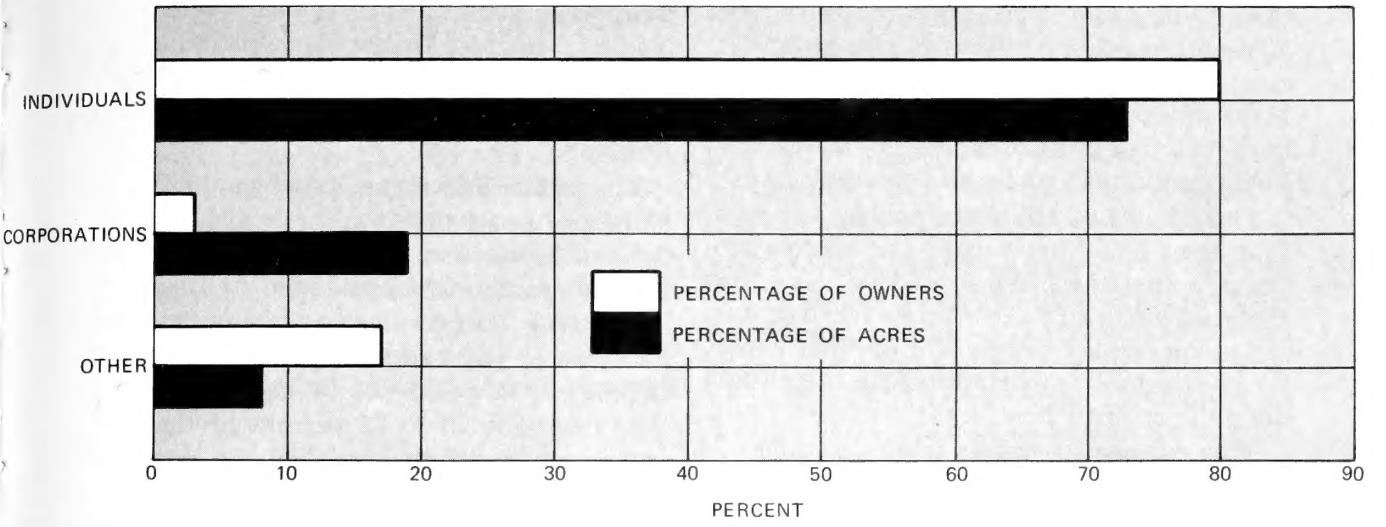


Figure 2.—Percentage of all owners and the share of the total acreage they own, by form of ownership, in Delaware, 1972.



a reflection of the large number of retirees and the low educational level of forest landowners. Then too, the Wilmington-New Castle County urban-industrial area raises the state's income level, while the southern portion of the state, where forest owners live, is rural.

Corporations own 68,800 acres of the private forest land in Delaware. Forest industries, the smallest category of corporate owners, own the largest share—29,700 acres. Corporate farms own 19,700 acres, and real estate corporations own 6,600 acres (fig. 2).

Forest land tenure is relatively stable in Delaware. Although 48 percent of the owners have owned their land less than 10 years, 85 percent of the private forest land has been in the same ownership for more than 10 years. A comparison of numbers of owners with the corresponding acreage owned indicates that, the smaller the tract, the shorter the period of tenure is likely to be.

Absentee ownership is not common in Delaware. Owners of 87 percent of the private commercial forest live either on the property or within 5 miles of it. Most owners hold only one tract of forest land. Owners of two or more tracts account for 11 percent of the owners and 27 percent of the land.

Why People Own Forest Land—Some Surprises

Why do people own forest land, and what benefits do they derive or expect to derive from it? We asked owners these questions. The answers were not always what we expected.

More than half of the forest owners in Delaware hold the land simply because it is part of their residence. These owners account for 49 percent of the private forest land in the state. Many of these owners are farmers; and the forest land is part of the farm, although it may serve no useful function in the present farm enterprise. An additional 9 percent of the owners said that their forest land was "for farm use," meaning a source of fenceposts, fuelwood, and miscellaneous farm timber. Speculation — holding land in anticipation of higher value — was the reason given by 24 percent of the owners, who own 11 percent of the private forest land.

Timber production motivates only 3 percent of the owners to hold forest land. These are mainly large timber-based industries that own extensive tracts of forest land. These companies own 29,700 of the 63,200 acres for which timber production is the primary reason for ownership.

When we compare the reasons that owners gave for holding forest land with the benefits they derive from it or expect to derive from it, we uncover some interesting insights. The most important benefit selected was esthetics. Many of those who live in or near their forest land indicated esthetic enjoyment as the most important benefit of forest ownership.

Though one-fourth of the owners indicated that they hold forest land for speculation, few felt that the increase in land value was the most important benefit they received during the previous 5 years. Nor did they expect it to be the most important benefit they would derive from their land in the coming 5 years.

This comparison raises some questions. Is forest land as good an investment as many owners anticipated? It is possible that many owners purchased the land for investment purposes only to discover that other benefits were more important to them.

Only 3 percent of the owners listed timber production as their reason for owning forest land, yet 11 percent said that the sale of timber was the most important benefit they derived from their land. Apparently timber production proved more rewarding to landowners than they had anticipated.

How Much Timber is Available?

One of the important objectives of this study was to provide an estimate of the volume of timber available for harvesting. Because the answer to this question is influenced by many social and economic factors, it is impossible to determine exactly just how much timber is available at a given time. Furthermore, even if such an estimate could be made, its utility would be limited to the time to which it applies, because industrial developments, market conditions, and social and economic developments can drastically alter those factors that interact to determine how much timber could be brought to market. We can, however, get an idea of how much timber might be available in Delaware by examining both the owners' past practices and future intentions.

Nearly 46 percent of Delaware's forest owners have harvested timber from their land. These owners are primarily the larger ones, who own 75 percent of the privately owned commercial forest land in the state. More than half of these owners said they intend to harvest timber from their land in the future. These people account for 71 percent of the privately owned forest land in Delaware.

The fact that both past practices and future plans are approximately the same supports the conclusion that 70 to 75 percent of the private commercial forest land in Delaware is growing timber that can be considered available or will be available for harvesting. Of course, it would not be valid to assume that the same 70 to 75 percent of the land will supply future harvests. But it seems to be a safe assumption that at any given time 70 to 75 percent of the land will be available for timber production.

It would also be incorrect to assume that the estimated 422 millon cubic feet of timber on lands held by owners who are willing to harvest is available at any given time. A more realistic approach might be to deal with annual net growth, because in the long run this is the volume that the area can provide on a sustained basis. In 1971 the harvest of growing stock on private forest land in Delaware was 12.0 million cubic feet (*Ferguson and Mayer 1972*). If we assume that 75 percent of the private land is producing available growth, then 13.8 million cubic feet was grown that was available. Since the proportion of total growth assumed to take place on the lands of owners who are willing to sell is in excess of the annual harvest, a surplus appears to be available.

This conclusion masks some important problems. When we look at the growth and harvest of softwoods and hardwoods separately, we get very different pictures. Though only 40 percent of the available hardwood growth was harvested in 1971, the harvest of softwood growing stock was more than double the available growth.

Clearly the inventory balance in Delaware is being drastically altered as more softwood is being harvested than is being grown on those lands that are considered open to timber harvesting, and less hardwood is being

removed than could be. We can then say that, if the objective is to maintain the present hardwood-softwood mix in Delaware, there is no available softwood growing stock or sawtimber in Delaware, but there is a surplus of 6.3 million cubic feet of available hardwood growing-stock growth. In fact, a continuation of present cutting of softwoods and underharvesting of hardwoods threatens to turn Delaware into a hardwood state. Further, it becomes obvious that the state's available commercial forest land cannot continue to sustain this high level of softwood production without an active forest-management program.

Why Some Owners Harvest Timber

Of the 5,200 forest-land owners in Delaware who harvested timber, 33 percent said they did so because the timber was mature. Another important reason for harvesting was the need for money. Five percent of the land was harvested for company use. Fewer than 1 percent of the owners who reported harvesting said that they did so to improve the timber stand. Seventeen percent said that timber salvage was the reason for harvesting, but none indicated that this was recommended by a forester. Clearly then, a desire to improve the condition of the growing-stock base is not a significant motivating force for harvesting timber in Delaware.

Why Other Owners Don't Harvest Timber

An estimated total of 6,200 forest-land owners in Delaware have not harvested timber, but these people hold only 25 percent of the private forest in the state. Small tract size was the most common reason given for not harvesting timber. An additional 3 percent of the owners said they had insufficient volume to harvest. Together these owners hold 22 percent of the unharvested land. Seventeen percent of the land was undisturbed because the timber was immature. The most common reason given for not harvesting was simply that the timber was not marketable for one reason or another. Reasons like distrust of loggers, selling the land, destruction of scenery, and opposition to timber cutting was mentioned by only 23 percent of the nonharvesting owners.

Thus only 40,800 acres — 11 percent — of the private commercial forest land is held by owners who are adamantly opposed to timber harvesting. From this it would seem that a substantial part of the forest that is now considered unavailable could be made available either through more management effort or by convincing owners that other values will not necessarily be destroyed.

Timber-Harvesting Practices

The timber buyer usually selected the trees to be harvested. This occurred on 79 percent of the ownerships that were harvested. Foresters marked the timber on only 7 percent of the ownerships. The landowner himself determined which trees would be cut on 14 percent of the ownerships.

Though the number of cases in which foresters marked the timber was small, their services were used more frequently on the larger ownerships. The corporate owner is more likely to enlist the services of a professional forester in selling his timber. The small landowner, on the other hand, is more likely to give the timber buyer what amounts to a blank check to harvest what he chooses. For the landowner's advantage, the buyer is usually the last person who should determine what timber should be harvested.

Though the individual-tree selection method of timber harvesting is most popular with landowners, it is employed on the smallest acreage. Clearcutting is the second most popular harvesting system, but it accounts for the greatest part of the acreage. Diameter-limit harvesting was the third most popular method with owners and the second most common in terms of acreage (fig. 3).

Pulpwood is the most important timber product of Delaware, in terms of volume harvested. It accounted for almost half of the volume of growing stock harvested in 1970 (*Bones 1973*). Sawlogs were the second most important product harvested.

However, the results of the ownership study give a different impression. More owners harvested sawlogs than harvested pulpwood. Also, these owners held 183,600 acres as opposed to the pulpwood harvesters, who owned 108,200.

Figure 3.—Percentage of owners and percentage of total acreage they own, for owners who have harvested and by harvesting system used, in Delaware, 1972.

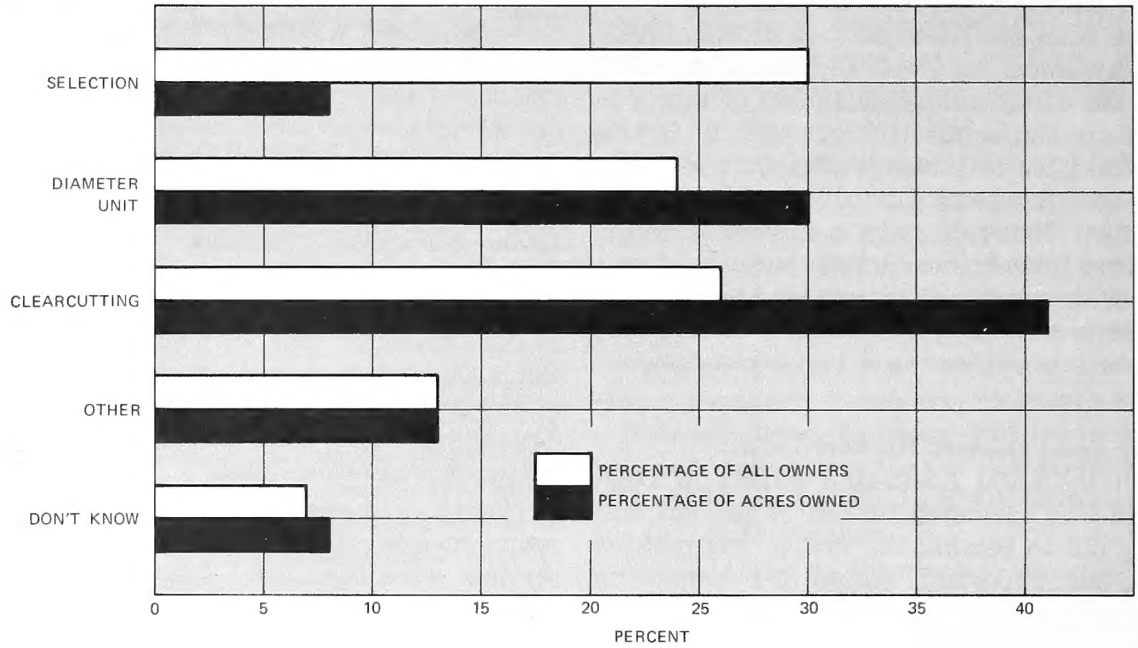
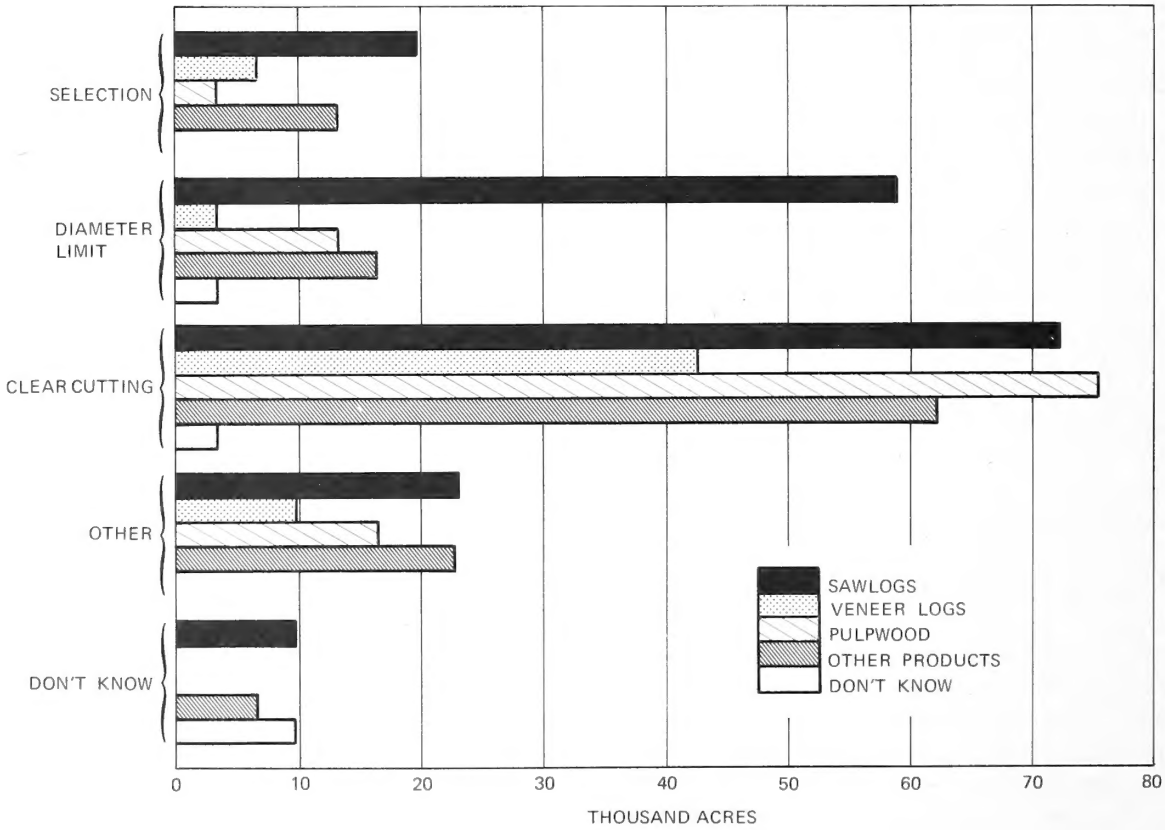


Figure 4.—Acreage owned by owners who have harvested, by harvesting system and by product harvested, in Delaware, 1972.



This apparent disparity may be explained by two considerations. First, much of the pulpwood harvest comes from clearcutting operations, while most of the sawlog harvest comes from areas that have been selectively logged. A greater volume can be harvested from a smaller area when clearcutting is used than when the selection system is used. And second, since a total of 5,200 owners holding 278,600 acres reported that they have harvested timber, it is obvious that many timber harvests involved more than one product (fig. 4).

This trend is in fact becoming more pronounced throughout the Northeast. Thus, though an owner may say that the principal product harvested from his land was sawlogs, an additional volume may have been pulpwood or some other product.

Public Forestry Assistance

In Delaware, public forestry assistance to landowners is the responsibility of the Forestry Section of the Delaware Department of Agriculture. Although they did not recognize the agency by name, most owners said that they would turn to "the State" for guidance. There is, of course, the possibility that they might not turn to the proper state agency initially. Another 10 percent of the owners named such agencies as "the County," the USDA Soil Conservation Service, consulting foresters, the USDA Forest Service, and the USDA Cooperative Extension Service.

Those owners who are persistent will eventually be referred to the State Department of Agriculture. Unfortunately, 38 percent of the owners did not know where they could obtain forestry assistance. And these owners own 37 percent of Delaware's private forest land. If forestry-assistance programs are to be successful, it is imperative that landowners know where and how to obtain advice and assistance.

In all fairness, we feel that this situation is not drastically different from that in most other states. But, this study does reveal the extent of the problem in Delaware. Similar studies planned for other states will probably confirm this feeling.

Only 15 percent of the private forest-land owners in Delaware received forestry services. These owners held 23 percent of the privately owned forest land in the state. Forty-two percent of the owners received assistance for tree planting. In most cases these were not extensive plantings. General forest-management assistance was received by 300 owners, and they held 35 percent of the acreage. Weeding, thinning, and pruning were only occasionally applied. Less than 10 percent of the forest-land owners in Delaware have undertaken any long-term forestry practices.

Recreation on Private Forest Land

The majority of the privately owned forest land in Delaware is open to public recreation in one form or another.

Owners were asked "Is the general public (other than your family and immediate circle of friends) permitted to use your land for any of the following: Hiking, picnicking, camping, fishing, or hunting?"

Hiking was permitted on 65 percent of the forest land. Picnicking was permitted on 62 percent of the land and camping on 58 percent. The reluctance of owners to permit picnicking and camping may be explained by the fact that these uses often create problems of littering and site degradation.

Hunting by the general public is permitted by 55 percent of the owners, who hold 61 percent of the private forest land. Although 167,100 acres of commercial forest land in Delaware are posted, either against trespassing in general or against hunting in particular, many owners whose lands are posted do permit public use. These owners usually wish to control the numbers of people using their land, and they also wish to know who is using their land for what, and where and when they are using it.

Introducing "Mr. DEL A. WARE"

Now that we have discussed the who's, what's, and why's of the forest-land owners in Delaware, we can describe what we might call the typical Delaware forest-land owner. Like all average characters, he probably doesn't exist. So, to make him seem a little more real we'll call him "Del A. Ware."

Del is a farmer who admits to being over

60 years old. He had less than 8 years of formal education and earns less than $10,000 per year. He grew up in a rural area much like the one he now lives in.

Del has about 32 acres of forest land on his farm, and he's owned it for 10 to 25 years. He harvested some sawlogs from his land several years back because he figured it was mature — and besides, he needed the money it would bring in.

Del is a trusting chap. He let the man who bought his timber pick out which trees to cut. This buyer "selectively" logged the area. Although Del says the sale of this timber was important to him, he says the most important benefit he gets from his forest land is just the enjoyment of looking at it.

Del doesn't spend much time worrying about his forest land, though. He has never received any forestry assistance or done any forest-management work on it. But, he says, if he ever decides to, he'll contact "the State." And, if he does do anything he'll probably plant some trees.

We asked Del if he intended to harvest trees again from his land, and he said he wasn't sure. "Maybe and maybe not, but if the price is right, and I need some cash, and I've got some mature timber to sell, I will. Then again I'm getting up in years, so I probably won't."

IN CONCLUSION

The results of this study have shown that, although 75 percent of the private commercial forest land in Delaware is owned by persons who have at one time or another harvested timber, few owners consider timber production an important motivating force for woodland ownership. Only 3 percent of the owners, mainly industrial, considered timber production the most important reason for owning forest land. On the other hand, more than half of the owners said they owned forest land because it was part of the land where they live. Thus, many owners enjoy forest benefits without consciously managing the land.

As pointed out earlier, the demand for softwood timber in Delaware is growing at an unprecedented rate. If the state is to meet this demand without depleting the resource base, some program of forest management will be required. Though most of the forest-land owners are not at present actively managing their land, our study indicates that this attitude could be changed.

Forest land tenure in Delaware is reasonably stable. About 85 percent of the private commercial forest land in the state has been owned by the same owner for 10 years or more. Thirty-four percent has been owned 25 years or more. Rapid turnover of ownership is not a major deterent to long-range forest management in Delaware. Also, in Delaware nearly 70 percent of the private commercial forest land is in tracts of 50 acres or more. Most forest managers consider 50 acres the minimum practical size for long-term forest management unless the site is unusually productive or is stocked with a particularly high-value species.

Few owners are adamantly opposed to timber harvesting; owners opposed to logging hold less than 10 percent of the private forest land in the state. These people account for about 10 percent of the owners.

Although the results are not directly comparable, a similar study in Massachusetts showed a substantially higher proportion of owners opposed to harvesting (*Babeu and others 1965*). This implies that many Delaware owners who have not harvested could be encouraged to do so if it were pointed out to them that it could benefit the condition of the land and help in providing those benefits they want from it if it were done properly.

Private commercial forest land in Delaware also provides an important recreation resource. The majority of private commercial forest land in the state is open to recreational use by the public. Thus landowners have an opportunity to provide two forest products simultaneously — wood and recreation.

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APPENDIX I

Study Method

The sampling design used in this study is derived from that used in the forest inventory. Forest Survey field personnel attempted to obtain the correct name and mailing address of the owner of each of the 155 forested plots that were located on privately owned land. Field crews were able to obtain usable addresses for nearly 90 percent of the field plots.

Each owner was mailed the questionnaire. This questionnaire was developed after investigation of several earlier ownership studies and consultations with other investigators. The questionnaire was also field-tested to insure that the burden on potential respondents would not be so great as to hinder response. The mass mailing consisted of the questionnaire plus a cover letter explaining the purpose of the survey. Approximately 2 weeks after the initial mailing, a second copy of the questionnaire and an additional cover letter that urged cooperation with the study were sent to those addresses who had not responded. By the end of the first month, 38 owners had responded. At this time we began a 100-percent field canvass of those owners who had not responded. This resulted in an additional 66 usable questionnaires. The resulting data were compiled by electronic computer, using the FINSYS generalized computer system. (See Wilson, Robert W., Jr., and Robert C. Peters, 1967. The Northeastern Forest Inventory Data Processing System I. Introduction. NE. For. Exp. Stn., Upper Darby, Pa., 20 p., illus. USDA For. Serv. Res. Pap. NE-61.)

Because the sample developed is proportional to forest area rather than to the number of owners, it introduces a bias in estimating number of owners. To overcome this bias it was necessary to weight the numbers of owners obtained in the sample. This procedure can be stated mathematically as

$$w_x = \frac{CFL_{p/Nr}}{Ai}$$

and $\sum w_x$ = estimated number of private owners in the state

where: w_x = the weighted number of owners represented by the respondent

CFL_p = the area of privately owned commercial forest land in the State

Nr = number of respondents in the survey

Ai = acres owned by respondent

The sum of the weighted number of owners then provides an unbiased estimate of the total number of persons who own commercial forest land in Delaware.

The acreage of commercial forest land was estimated in a manner similar to that used in the forest survey. The total area of privately owned commercial forest land was divided by the number of field plots represented in the ownership canvass. Thus, if a particular respondent owned one forested plot, his response was given a weight of one and his response was said to account for 3,277.9 acres of commercial forest land. If a respondent represented two forested plots, his response received a weight of two, or double the acreage, and so on. Actual reported acreage was used only to calculate the sample mean, mode, and median.

It was also necessary to determine if those questionnaires obtained through the mail and those obtained by means of the field follow-up were both samples of the same population. The hypothesis tested was that there was no significant difference in mean acreage between the two subsamples. Student's t-test showed that no significant difference existed at the 99-percent probability level.

APPENDIX II

Sampling Errors

Sampling errors were calculated for the estimated total number of forest-land owners in Delaware. The sampling error for the number of acres of commercial forest land in private ownership, calculated as part of the forest survey, is ±11,600 acres or ±3 percent of the estimate. That is, we would expect that the true acreage falls within the range 358,800 and 382,000 acres. The sampling error for the estimated total number of owners is ±2,298 or ±20 percent.[1] Thus, we expect that the true number of owners lies within the range 9,100 and 13,700. The user of these data is cautioned that, as the size of any estimate decreases in relation to the total estimate, the sampling error, expressed as a percent cf the estimate, increases drastically.

APPENDIX III

Definition of Terms

Forest land.—Land that is at least 16.7 percent stocked (contains at least 7.5 square feet of basal area) by forest trees of any size, or that formerly had such tree cover and is not currently developed for nonforest use. (Forest trees are woody plants that have a well-developed stem and usually are more than 12 feet in height at maturity.) The minimum area for classification of forest land is 1 acre.

Commercial forest land.—Forest land that is producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and is not withdrawn from timber utilization. (Industrial wood: all roundwood products except fuelwood.)

Private commercial forest land.—All commercial forest land other than that owned by federal, state, or local governments or their agencies.

Softwoods.—Coniferous trees that are usually evergreen, having needles or scalelike leaves.

Hardwoods. — Decotyledonous trees that are usually broad-leaved and deciduous.

Stand.—A growth of trees on a minimum of 1 acre of forest land that is at least 16.7 percent stocked by forest trees of any size.

Growing-stock trees.—Live trees of commercial species that are classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Growing-stock volume.—Net volume, in cubic feet, of live growing-stock trees that are 5.0 inches dbh and over, from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem.

Sawtimber trees.—Live trees of commercial species: (a) that are of the following minimum diameters at breast height: softwoods 9.0 inches and hardwoods 11.0 inches, and (b) that contain at least one 12-foot merchantable sawlog and meet regional specifications for freedom from defect.

Sawtimber volume. — Net volume in board feet, International ¼-inch rule, of merchantable sawlogs in live sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Board-feet.—A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent. By forest survey convention, softwoods less than 9.0 inches dbh and hardwoods less than 11.0 inches dbh do not contain board-foot volume.

Annual net growth.—The annual change (resulting from natural causes) in volume of sound wood in sawtimber and poletimber trees.

Timber removals. — The volume of growing stock or sawtimber trees harvested or killed in logging, cultural operations such as timber-stand improvement, land-clearing, or changes in land use.

Forest industries.—Companies or individuals operating wood-using plants.

Timber salvage.—Removals of down, damaged, or diseased trees.

Selection system.—The method of timber harvesting in which usually only the oldest or largest trees in a stand are harvested. Trees are taken singly or in small groups, but the entire stand is never cleared off completely.

Clearcutting.—The method of timber harvesting in which virtually all the trees, large and small, are removed. The term is often erroneously applied to any type of cutting in which all the merchantable timber is removed and all that is not merchantable is left.

Diameter limit.—The method of timber harvesting in which all trees above a specified diameter are removed.

Sawlog.—Any log from which lumber is to be sawed.

Veneer log.—Any log from which veneer is to be made either by peeling or slicing.

Pulpwood.—Any log from which woodpulp is to be made, usually measured in bolts of 4, 5, or 8 feet and somewhat smaller in diameter than either sawlogs or veneer logs.

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[1] For a discussion of the method used to calculate this sampling error see: Cochran, William G., 1963. Sampling Techniques, second edition. 252 p. 9.10 Theory for selection with arbitrary probabilities. John Wiley & Sons, Inc., New York.

APPENDIX IV

Tabular Data

Table

1. Estimated number of private owners of commercial forest land and acres owned by size-class of ownership, Delaware, 1972.
2. Form of ownership by number of owners, acres of commercial forest owned, and percent of owners who have harvested timber, Delaware, 1972.
3. Corporate ownership by estimated number of owners and acres of commercial forest land owned, Delaware, 1972.
4. Occupations of individual owners by number of owners, acres of commercial forest land owned, and percent harvesting, Delaware, 1972.
5. Age class of individual owners by number of owners and acreage of commercial forest land owned, Delaware, 1972.
6. Years of completed education for individual owners, by number of owners and acres of commercial forest land owned, Delaware, 1972.
7. Individual owners by income groups, number of owners and area of commercial forest land owned, Delaware, 1972.
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9. Length of time commercial forest land has been owned by number of owners and area of commercial forest land owned, Delaware, 1972.
10. Distance owner's residence is from his nearest tract, by number of owners and acreage of commercial forest land owned, Delaware, 1972.
11. Number of tracts owned by number of owners and total acreage of commercial forest land owned, Delaware, 1972.
12. Reason for owning commercial forest land by number of owners, by harvesters and non-harvesters, Delaware, 1972.
13. Reason for owning commercial forest land by acres owned, for harvesters and non-harvesters, Delaware, 1972.
14. Benefits derived from forest land in the last 5 years by all owners, owners who did harvest timber and owners who did not harvest timber, Delaware, 1972.
15. Benefits derived in the last 5 years by acreage owned for all owners, owners who did harvest timber and owners who did not harvest, Delaware, 1972.
16. Benefits expected during the next 5 years by all owners, owners who did harvest timber and by owners who did not harvest timber, Delaware, 1972.
17. Benefits expected during the next 5 years by acreage owned for all owners, owners who did harvest and for owners who did not harvest, Delaware, 1972.
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25. Agency that owners would contact for forestry assistance and acreage these owners own, Delaware, 1972.
26. Owners who received forestry services by the nature of the service and acres owned, Delaware, 1972.
27. Recreational uses permitted by number of owners and by acres of commercial forest land owned, Delaware, 1972.

Table 1.—Estimated number of private owners of commercial forest land and acres owned, by size-class of ownership, Delaware, 1972

Size-class of ownership (in acres)	Owners	Commercial forest land owned[a]
	No.	*Acres*
1 to 9	4,100	13,800
10 to 19	1,100	10,600
20 to 49	4,200	88,300
50 to 99	1,300	65,800
100 to 149	400	31,300
150 to 199	100	12,700
200 to 299	100	21,000
300 or more	100	126,900
Total	11,400	370,400

[a] Based on average acreage owned by owners in the size class.

Table 2.—Form of ownership by numbers of owners, acreage of commercial forest owned, and percentage of owners who have harvested timber, Delaware, 1972

Ownership category	Owners		Acreage owned		Owners who have harvested	Percentage of acreage owned by harvesters
	No.	*Pct.*	*Acres*	*Pct.*	*Pct.*	*Pct.*
Individuals[a]	9,200	80	275,400	73	52	73
Corporations	300	3	68,800	19	97	95
Partnerships	1,600	14	13,100	4	1	25
Other[b]	300	3	13,100	4	84	75
Total	11,400	100	370,400	100	46	75

[a] Individuals includes joint ownerships.
[b] Other includes associations, clubs, and undivided estates.

Table 3.—Corporate ownership, by estimated number of owners and acreage of commercial forest land owned, Delaware, 1972

Type of corporation	Estimated number of owners	Acreage of commercial forest land	Percentage of corporate commercial forest land
	No.	*Acres*	*Pct.*
Real estate	20	6,600	10
Corporate farms	80	19,700	29
Forest industries	(a)	29,700	43
Public utilities	10	3,300	5
Other industries	190	9,500	13
Total	300	68,800	100

[a] Fewer than 10 owners.

Table 4.—Occupations of individual owners by number of owners, acreage of commercial forest land owned, and percentage of owners who harvested, Delaware, 1972

Occupation	Owners		Acreage owned		Owners who harvested	Percentage of commercial forest land owned by harvesters
	No.	*Pct.*	*Acres*	*Pct.*	*Pct.*	*Pct.*
Farmers	4,000	43	158,400	57	62	78
Retired	3,400	37	58,500	21	30	71
Skilled labor	500	6	17,200	6	76	60
Housewives	300	3	13,800	5	80	50
Other[a]	1,000	11	27,500	11	81	63
Total	9,200	100	275,400	100	54	73

[a] Includes professionals, executives, white-collar workers, laborers, and others not elsewhere classified.

Table 5.—Age class of individual owners, by number of owners and acreage of commercial forest land owned, Delaware, 1972

Age class (years)	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
Under 40	200	2	10,600	4
40-49	2,600	28	77,700	28
50-59	2,500	27	77,700	28
Over 60	3,900	43	109,400	40
Total	9,200	100	275,400	100

Table 6.—Years of education completed by individual owners, by number of owners, and acreage of commercial forest land owned, Delaware, 1972

Education level (years)	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
0-8	4,500	49	98,900	36
9-12	4,000	43	148,300	54
More than 12	700	8	28,200	10
Total	9,200	100	275,400	100

Table 7.—Income class of individual owners, by number of owners and acreage of commercial forest land owned, Delaware, 1972

Income class	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
Under $3,000	2,800	30	24,700	9
$ 3,000-10,000	4,700	51	166,000	60
$10,000-30,000	800	9	45,900	17
Over $30,000	900	10	38,800	14
Total	9,200	100	275,400	100

Table 8.—Early life environment of individual owners, by number of owners and acreage of commercial forest land owned, Delaware, 1972

Early life environment	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
City	500	6	20,900	8
Town	300	3	17,400	6
Rural	8,400	91	237,100	86
Total	9,200	100	275,400	100

Table 9.—Length of time commercial forest land has been owned, by number of owners and acreage of commercial forest land owned, Delaware, 1972

Time owned (years)	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
Less than 5	1,700	15	18,300	5
5- 9	2,600	23	36,700	10
10-24	4,500	40	190,700	51
25 or more	2,600	22	124,700	34
Total	11,400	100	370,400	100

Table 10.—Distance owner's residence is from his nearest tract, by number of owners and acreage of commercial forest land owned, Delaware, 1972

Distance from nearest tract (miles)	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
0- 5	8,800	78	324,100	87
6-15	2,000	17	21,400	6
More than 15	600	5	24,900	7
Total	11,400	100	370,400	100

Table 11.—Number of tracts owned, by number of owners and total acreage of commercial forest land owned, Delaware, 1972

Tracts owned (No.)	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
1	10,200	89	270,300	73
2	800	7	46,700	13
3 or more	400	4	53,400	14
Total	11,400	100	370,400	100

Table 12.—Reason for owning commercial forest land, by number of owners, harvesters or non-harvesters, Delaware, 1972

Reason for owning forest land	Owners who harvested		Owners who did not harvest		All owners	
	No.	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*
Land investment	900	17	1,800	30	2,700	24
Recreation	200	3	600	9	800	7
Timber production	100	3	200	3	300	3
General farm use	400	7	600	9	1,000	9
Part of residence	3,300	64	2,900	47	6,200	54
Other	300	6	100	2	400	3
Total	5,200	100	6,200	100	11,400	100

Table 13.—Reason for owning commercial forest land, by acreage owned, by harvesters and non-harvesters, Delaware, 1972

Reason for owning forest land	Owners who harvested		Owners who did not harvest		All owners	
	Acres	*Pct.*	*Acres*	*Pct.*	*Acres*	*Pct.*
Land investment	35,300	13	6,800	7	42,100	11
Recreation	7,000	3	17,000	19	24,000	7
Timber production	56,400	20	6,800	7	63,200	17
General farm use	24,700	9	10,200	11	34,900	9
Part of residence	134,000	48	47,600	52	181,600	49
Other	21,200	7	3,400	4	24,600	7
Total	278,600	100	91,800	100	370,400	100

Table 14.—Benefits derived from forest land in the last 5 years by all owners, owners who did harvest timber and owners who did not harvest timber, Delaware, 1972

Benefits derived from forest land	Owners who harvested		Owners who did not harvest		All owners	
	No.	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*
Recreation	400	7	700	12	1,100	10
Sale of timber	1,100	22	200[a]	3	1,300	11
Land value increase	600	11	100	1	700	6
Esthetics	2,800	54	4,700	76	7,500	66
Other	300	6	500	8	800	7
Total	5,200	100	6,200	100	11,400	100

[a] Apparently these owners consider future timber sale to be their most important benefit.

Table 15.—Benefits derived by owners in the last 5 years, by acreage owned, for all owners, owners who did harvest and owners who did not harvest, Delaware, 1972

Benefits derived from forest land	Owners who harvested		Owners who did not harvest		All owners	
	Acres	*Pct.*	*Acres*	*Pct.*	*Acres*	*Pct.*
Recreation	20,900	7	11,000	12	31,900	9
Sale of timber	101,000	37	3,700[a]	4	104,700	28
Land value increase	38,300	14	7,300	8	45,600	12
Esthetics	97,500	35	62,500	68	160,000	43
Other	20,900	7	7,300	8	28,200	8
Total	278,600	100	91,800	100	370,400	100

[a] Apparently these owners consider future timber sale to be their most important benefit.

Table 16.—Benefits expected during the next 5 years by all owners, owners who did harvest timber and owners who did not harvest timber, Delaware, 1972

Expected benefit	Owners who harvested		Owners who did not harvest		All owners	
	No.	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*
Recreation	1,000	19	1,000	16	2,000	17
Sale of timber	200	4	400	7	600	5
Land value increase	1,000	19	200	4	1,200	11
Esthetics	2,500	48	4,200	67	6,700	59
Other	500	10	400	6	900	8
Total	5,200	100	6,200	100	11,400	100

Table 17.—Benefits expected by owners during the next 5 years, by acreage owned, for owners who did harvest and for owners who did not harvest, Delaware, 1972.

Expected benefits	Owners who harvested		Owners who did not harvest		All owners	
	Acres	*Pct.*	*Acres*	*Pct.*	*Acres*	*Pct.*
Recreation	38,800	14	14,700	16	53,500	14
Sale of timber	67,000	24	3,700	4	70,700	19
Land value increase	52,900	19	11,000	12	63,900	17
Esethetics	88,200	32	58,700	64	146,900	40
Other	31,700	11	3,700	4	35,400	10
Total	278,600	100	91,800	100	370,400	100

Table 18.—Reason for harvesting, by number of harvesters and area of commercial forest land owned, Delaware, 1972

Reasons for harvesting	Owners		Area owned	
	No.	*Pct.*	*Acres*	*Pct.*
Timber mature	1,700	33	96,600	35
Good price	600	12	29,700	11
Land-clearing	400	8	29,700	11
Need of money	1,400	26	81,800	29
Company use	(a)	(a)	14,900	5
Timber salvage	900	17	11,100	4
Other reasons	200	4	14,800	5
Total	5,200	100	278,600	100

[a] Fewer than 50 owners and less than 0.5 percent.

Table 19.—Reasons for not harvesting, by number of non-harvesters and area of commercial forest land, Delaware, 1972

Reason for not harvesting	Owners		Area owned	
	No.	*Pct.*	*Acres*	*Pct.*
No market for timber	200	3	5,100	6
Poor quality timber	600	10	10,200	11
Timber not mature	1,000	16	15,300	17
Insufficient volume	200	3	5,100	6
Insufficient area	2,800	45	15,300	16
Distrust loggers	300	4	10,200	11
Selling land	200	3	5,100	6
Logging would destroy scenery	300	6	15,300	16
Opposed to timber cutting	600	10	10,200	11
Total	6,200	100	91,800	100

Table 20.—Individual who selected the timber to be harvested, by number of owners and acreage owned, Delaware, 1972

Individual selecting timber	Owners		Acreage owned	
	No.	*Pct.*	*Acres*	*Pct.*
Landowner	800	14	52,400	19
Forester	400	7	59,000	21
Friend	(a)	(a)	3,300	1
Buyer	4,000	79	163,900	59
Total	5,200	100	278,600	100

[a] Fewer than 50 owners and less than 0.5 percent.

Table 21.—Method of selecting timber to be harvested, by number of owners and acreage owned, Delaware, 1972

Method of selecting timber	Owners		Acreage owned	
	No.	*Pct.*	*Acres*	*Pct.*
Selection	1,500	30	23,200	8
Diameter limit	1,200	24	82,900	30
Clearcutting	1,400	26	112,800	41
Other	700	13	36,500	13
Don't know	400	7	23,200	8
Total	5,200	100	278,600	100

Table 22.—Method of selecting timber to be harvested, by product harvested and number of owners, Delaware, 1972

Method of selecting timber	Sawlogs	Veneer logs	Pulpwood	Other products	Don't know
			Number of owners		
Selection	1,100	200	200	700	—
Diameter limit	1,300	100	200	200	(a)
Clearcutting	600	100	800	500	(a)
Other	100	(a)	600	200	—
Don't know	200	—	—	100	400
Total	3,300	400	1,800	1,700	400

[a] Fewer than 50 owners.

Table 23.—Method of selecting timber to be harvested, by product harvested for acres owned, Delaware, 1972

Method of selecting timber	Sawlogs	Veneer logs	Pulpwood	Other products	Don't know
			Acres		
Selection	19,700	6,600	3,300	13,100	—
Diameter limit	59,000	3,300	13,100	16,400	3,300
Clearcutting	72,100	42,600	75,400	62,300	3,300
Other	23,000	9,800	16,400	22,900	—
Don't know	9,800	—	—	6,600	9,800
Total	183,600	62,300	108,200	121,300	16,400

Table 24.—Expected time of next timber harvest, by number of owners and area of commercial forest land owned, Delaware, 1972

Expected time of harvest	Owners		Commercial forest land owned	
	No.	*Pct.*	*Acres*	*Pct.*
Next 10 years	300	2	81,100	22
Indefinite	5,800	51	179,900	49
Will never harvest	5,300	47	109,400	29
Total	11,400	100	370,400	100

Table 25.—Agency that owners would contact for forestry assistance and the acreage these owners own, Delaware, 1972

Agency	Owners		Acreage owned	
	No.	*Pct.*	*Acres*	*Pct.*
County	200	2	11,100	3
State	5,900	52	159,300	43
Soil Conservation Service	400	4	14,800	4
Consulting forester	400	3	3,700	1
Cooperative Extension Service	(a)	(a)	33,300	9
Other	200	1	11,100	3
Don't know	4,300	38	137,100	37
Total	11,400	100	370,400	100

[a] Fewer than 50 owners and less than 0.5 percent.

Table 26.—Owners who received forestry services, by nature of the service and acreage owned, Delaware, 1972

Forestry service	Owners		Acreage owned	
	No.	*Pct.*	*Acres*	*Pct.*
Timber-stand improvement	(a)	2	6,500	8
Tree planting	700	42	16,400	19
Timber-sale administration	400	21	16,400	19
Timber-stand evaluation	(a)	1	6,500	8
General forest management	300	16	29,500	35
Other	300	18	9,900	11
Total	1,700	100	85,200	100

[a] Fewer than 50 owners.

Table 27.—Recreational uses permitted, by number of owners and by acreage of commercial forest land owned, Delaware, 1972[a]

Recreation use	Owners		Acreage owned	
	No.	*Pct.*	*Acres*	*Pct.*
Hiking	6,500	57	242,100	65
Picnicking	5,800	51	230,100	62
Camping	5,800	51	214,600	58
Fishing	5,500	48	213,300	58
Hunting	6,400	55	225,000	61

[a] 167,100 acres are posted against hunting and trespassing.

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